# TEST RESULTS and REPORT

#### for

## Carl Zeiss Vision T-CSD052915,T-CSD061915,T-CSD062515 T-CSD062615,T-CSD062915,T-CSD070915

by



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<sup>-</sup> Results in this report only relate to the samples analyzed.

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<sup>-</sup> Unless otherwise requested, test samples will be discarded 21 days from the report date.

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#### **Carl Zeiss Vision**

T-CSD052915,T-CSD061915,T-CSD062515,T-CSD062615,T-CSD062915,T-CSD070915

CSD052915-01 & CSD061915-01	Colts Standard AR Zeiss lens wipe non-alcoholic		
Oily Cleaning (Pre-Moistened Towelette)-DQ	0.00		
Cleaning Cloth Abrasion - DQ	0.02		
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	Cloudiness-E
, ,	5.0 Crazing-A	5.0 Delamintion-B	5.0 Cloudiness-E
AR Cleaning Solution Soak (CC) 48 HRS-DQ	5.0	5.0	5.0
CSD052915-02 & CSD062915-01		ınger Poly Polari lens wipe non-al	
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.10	
Cleaning Cloth Abrasion - DQ		0.01	
CSD052915-03 & CSD062615-01	Essilor Crizal Forte Zeiss lens wipe non-alcoholic		
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.02	
Cleaning Cloth Abrasion - DQ		0.00	
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A 5.0	Delamination-B 5.0	Cloudiness-E 5.0
AR Cleaning Solution Soak (CC) 48 HRS-DQ	Crazing-A 5.0	Delamintion-B 5.0	Cloudiness-E 5.0
CSD052915-04	Hoya Super HiVision AR Zeiss lens wipe non-alcoholic		AR oholic
Oily Cleaning (Pre-Moistened Towelette)-DQ	0.00		
Cleaning Cloth Abrasion - DQ	0.01		
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	Cloudiness-E
<u> </u>	5.0 Crazing-A	5.0 Delamintion-B	5.0 Cloudiness-E
AR Cleaning Solution Soak (CC) 48 HRS-DQ	5.0	5.0	5.0

Note: CC - Concave / CX - Convex

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CSD052915-05		stock Solitaire P	
Oily Cleaning (Pre-Moistened Towelette)-DQ	Zeiss lens wipe non-alcoholic 0.02		SOHOLIC
Cleaning Cloth Abrasion - DQ	0.02		
Cleaning Cloth Abrasion - DQ	Crazina A	Delamination-B	Cloudiness-E
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A 5.0	5.0	5.0
AR Cleaning Solution Soak (CC) 48 HRS-DQ	Crazing-A	Delamintion-B	Cloudiness-E
AR Cleaning Solution Soak (CC) 46 HRS-DQ	5.0	5.0	5.0
CSD052915-06 & CSD070915-04		1.5 Clear and Zeis ens wipe non-alc	
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.22	
Cleaning Cloth Abrasion - DQ		0.00	
CSD052915-07 & CSD070915-01		PhotoFusion and ens wipe non-alc	
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.02	
Cleaning Cloth Abrasion - DQ		0.03	
CSD052915-08		1.6 Clear and Zei lens wipe non-ald	
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.03	
Cleaning Cloth Abrasion - DQ		0.01	
CSD052915-09 & CSD070915-02	Zeiss 1.6 l Zeiss l	PhotoFusion and ens wipe non-alc	Zeiss HC coholic
Oily Cleaning (Pre-Moistened Towelette)-DQ	0.05		
Cleaning Cloth Abrasion - DQ	0.03		
CSD052915-10	Zeiss 1.74 Clear and Zeiss AR Zeiss lens wipe non-alcoholic		
Oily Cleaning (Pre-Moistened Towelette)-DQ	0.02		
Cleaning Cloth Abrasion - DQ	0.11		
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	Cloudiness-E
	5.0	5.0	5.0
AR Cleaning Solution Soak (CC) 48 HRS-DQ	Crazing-A 5.0	Delamintion-B 5.0	Cloudiness-E 5.0
	J.0	J.U	J.0

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CSD052915-11		eiss HMC HC & A ens wipe non-alc	
Oily Cleaning (Pre-Moistened Towelette)-DQ	0.02		
Cleaning Cloth Abrasion - DQ		0.02	
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	
AD Cleaning Colution Cook (CC) 40 UDC DO	5.0 Crazing-A	5.0 Delamintion-B	5.0 Cloudiness-E
AR Cleaning Solution Soak (CC) 48 HRS-DQ	5.0	5.0	5.0
CSD052915-12	Zeiss HMC+ HC & AR Zeiss lens wipe non-alcoholic		
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.00	
Cleaning Cloth Abrasion - DQ	0.00		
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	
The committee of the control of the	5.0	5.0	5.0
AR Cleaning Solution Soak (CC) 48 HRS-DQ	Crazing-A 5.0	Delamintion-B 5.0	Cloudiness-E 5.0
CSD052915-13 & CSD070915-03		s DV Silver HC & lens wipe non-al	
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.00	
Cleaning Cloth Abrasion - DQ	0.00		
		0.00	
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	
AR Cleaning Solution Soak (CX) 48 HRS-DQ	5.0	Delamination-B 5.0	5.0
AR Cleaning Solution Soak (CX) 48 HRS-DQ  AR Cleaning Solution Soak (CC) 48 HRS-DQ	5.0 Crazing-A	Delamination-B 5.0 Delamintion-B	5.0 Cloudiness-E
	5.0 Crazing-A 5.0 Zei	Delamination-B 5.0	5.0 Cloudiness-E 5.0 AR
AR Cleaning Solution Soak (CC) 48 HRS-DQ	5.0 Crazing-A 5.0 Zei	Delamination-B 5.0 Delamintion-B 5.0 ss Lotutec HC &	5.0 Cloudiness-E 5.0 AR
AR Cleaning Solution Soak (CC) 48 HRS-DQ CSD052915-14	5.0 Crazing-A 5.0 Zei	Delamination-B 5.0 Delamintion-B 5.0 ss Lotutec HC & lens wipe non-al	5.0 Cloudiness-E 5.0 AR
AR Cleaning Solution Soak (CC) 48 HRS-DQ  CSD052915-14  Oily Cleaning (Pre-Moistened Towelette)-DQ  Cleaning Cloth Abrasion - DQ	5.0 Crazing-A 5.0 Zei Zeiss Crazing-A	Delamination-B 5.0 Delamintion-B 5.0 ss Lotutec HC & lens wipe non-alc 0.00 0.00 Delamination-B	5.0 Cloudiness-E 5.0 AR coholic Cloudiness-E
AR Cleaning Solution Soak (CC) 48 HRS-DQ  CSD052915-14  Oily Cleaning (Pre-Moistened Towelette)-DQ	5.0 Crazing-A 5.0 Zei Zeiss Crazing-A 5.0	Delamination-B 5.0 Delamintion-B 5.0 ss Lotutec HC & lens wipe non-alc 0.00 0.00 Delamination-B 5.0	5.0 Cloudiness-E 5.0 AR coholic Cloudiness-E 5.0
AR Cleaning Solution Soak (CC) 48 HRS-DQ  CSD052915-14  Oily Cleaning (Pre-Moistened Towelette)-DQ  Cleaning Cloth Abrasion - DQ	5.0 Crazing-A 5.0 Zei Zeiss Crazing-A	Delamination-B 5.0 Delamintion-B 5.0 ss Lotutec HC & lens wipe non-alc 0.00 0.00 Delamination-B	5.0 Cloudiness-E 5.0 AR coholic Cloudiness-E

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CSD052915-15	Zeiss	US Hoya Trivex As lens wipe non-a	AR Icoholic
Oily Cleaning (Pre-Moistened Towelette)-DQ	0.09		
Cleaning Cloth Abrasion - DQ		0.01	
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	
AP Cleaning Solution Seek (CC) 49 UPS DO	5.0 Crazing-A	5.0 Delamintion-B	5.0 Cloudiness-E
AR Cleaning Solution Soak (CC) 48 HRS-DQ	5.0	5.0	5.0
CSD052915-16		silor FSV Orma F s lens wipe non-a	
Oily Cleaning (Pre-Moistened Towelette)-DQ		0.02	
Cleaning Cloth Abrasion - DQ	0.02		
AR Cleaning Solution Soak (CX) 48 HRS-DQ	Crazing-A	Delamination-B	
, , , , , , , , , , , , , , , , , , ,	5.0	5.0 Delamintion-B	5.0 Cloudiness-E
AR Cleaning Solution Soak (CC) 48 HRS-DQ	Crazing-A 5.0	5.0	5.0
	0.0	0.0	0.0
CSD052915-17	US Es	silor FSV Airwea lens wipe non-al	r Crizal
CSD052915-17 Oily Cleaning (Pre-Moistened Towelette)-DQ	US Es	silor FSV Airwea	r Crizal
	US Es	silor FSV Airwea lens wipe non-al	r Crizal
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ	US Es Zeiss Crazing-A	silor FSV Airwea lens wipe non-al 0.02 0.01 Delamination-B	r Crizal coholic Cloudiness-E
Oily Cleaning (Pre-Moistened Towelette)-DQ	US Es Zeiss Crazing-A 5.0	silor FSV Airwea lens wipe non-al 0.02 0.01 Delamination-B 5.0	Cloudiness-E
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ	US Es Zeiss Crazing-A 5.0 Crazing-A	osilor FSV Airwea lens wipe non-al 0.02 0.01 Delamination-B 5.0 Delamintion-B	Cloudiness-E 5.0 Cloudiness-E
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ AR Cleaning Solution Soak (CX) 48 HRS-DQ	US Es Zeiss  Crazing-A 5.0 Crazing-A 5.0	o.02 0.01 Delamination-B 5.0 Delamintion-B 5.0 arl Zeiss DVP Le	Cloudiness-E 5.0 Cloudiness-E 5.0
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ AR Cleaning Solution Soak (CX) 48 HRS-DQ AR Cleaning Solution Soak (CC) 48 HRS-DQ	US Es Zeiss  Crazing-A 5.0 Crazing-A 5.0	silor FSV Airwea lens wipe non-al 0.02 0.01 Delamination-B 5.0 Delamintion-B 5.0	Cloudiness-E 5.0 Cloudiness-E 5.0
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ AR Cleaning Solution Soak (CX) 48 HRS-DQ AR Cleaning Solution Soak (CC) 48 HRS-DQ CSD062515-01	US Es Zeiss  Crazing-A 5.0 Crazing-A 5.0	osilor FSV Airweatens wipe non-al 0.02 0.01 Delamination-B 5.0 Delamintion-B 5.0 arl Zeiss DVP Lestens wipe non-a	Cloudiness-E 5.0 Cloudiness-E 5.0
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ AR Cleaning Solution Soak (CX) 48 HRS-DQ AR Cleaning Solution Soak (CC) 48 HRS-DQ CSD062515-01 Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ	Crazing-A 5.0 Crazing-A 5.0 Czeiss	osilor FSV Airwea lens wipe non-al 0.02 0.01 Delamination-B 5.0 Delamintion-B 5.0 arl Zeiss DVP Les lens wipe non-a 0.00 0.00	Cloudiness-E 5.0 Cloudiness-E 5.0 Cloudiness-E 5.0 ns lcoholic
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ AR Cleaning Solution Soak (CX) 48 HRS-DQ AR Cleaning Solution Soak (CC) 48 HRS-DQ CSD062515-01 Oily Cleaning (Pre-Moistened Towelette)-DQ	Crazing-A 5.0 Crazing-A 5.0 Crazing-A 5.0 Crazing-A 5.0 Crazing-A 5.0	o.02 0.01 Delamination-B 5.0 Delamintion-B 5.0 arl Zeiss DVP Les lens wipe non-a 0.00 0.00 Delamination-B 5.0	Cloudiness-E 5.0 Cloudiness-E 5.0 ns lcoholic  Cloudiness-E 5.0
Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ AR Cleaning Solution Soak (CX) 48 HRS-DQ AR Cleaning Solution Soak (CC) 48 HRS-DQ CSD062515-01 Oily Cleaning (Pre-Moistened Towelette)-DQ Cleaning Cloth Abrasion - DQ	Crazing-A 5.0 Crazing-A 5.0 Czeiss	osilor FSV Airwea lens wipe non-al 0.02 0.01 Delamination-B 5.0 Delamintion-B 5.0 arl Zeiss DVP Les lens wipe non-a 0.00 0.00	Cloudiness-E 5.0 Cloudiness-E 5.0 Cloudiness-E 1.0 Cloudiness-E Cloudiness-E

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#### **EXHIBIT A**

Subjective Delamination, Crazing and Crosshatch ratings.

Rate and record the performance for the surface exposed on each lens according to the following classification and description.

Classification Category A - Crazing

Classification	Description
A5	No visible Crazing.
A4	Hairline Crazing only just visible points or cracks.
A3	Hairline Crazing up to 25% of the lens surface.
A2	Hairline Crazing up to 75% of the lens surface.
A1	Hairline Crazing over the entire lens surface.
A0	Severe Fern-like or Matt-like Crazing over any region of lens.

Classification Category B - **Delamination** - **Interlayer detachment**.

Classification	Description
B5	No Delamination of individual layers over entire lens surface.
B4	Partial Delamination of individual layers up to 25% of the surface.
B3	Partial Delamination of individual layers up to 75% of the surface.
B2	Total Delamination of individual layers over the entire lens surface.

#### Classification Category C - Delamination - complete coating detachment

Classification	Description
C5	No Coating Delamination of all layers from the lens surface.
C4	Delamination of all layers up to 25% of the surface.
C3	Delamination of all layers up to 75% of the surface.
C2	Complete Coating Delamination over the entire lens surface.

#### Classification Category D - Crosshatch

See exhibit B for classifications and descriptions.

#### NOTE:

<u>Classification B</u> relates to either a single layer hard coat <u>or</u> the thin film coating where one is delaminating and where <u>one</u> or <u>both</u> have been applied to the lens depending on the product type. (i.e., HC, Thin Film, HC & Thin Film)

<u>Classification C</u> relates to a dual coated product where both a hard coat <u>and</u> a thin film coating has been applied and <u>together</u> are delaminating. (i.e. HC & thin film)

For each lens tested, note any evidence of stains, smears, streaks or cloudiness.



### EXHIBIT E COLTS CIRRUS CLOUDINESS SCALE

Classification	Appearance	Description
5		The lens must not show any evidence of effects.
4		The lens shows effects over less than 5% of the total area. The circles show the affected areas.
3		The area affected is 5% to 25% of the total area The circles show the affected areas.
2		The area affected is 25% to 50% of the total area.
1		The area affected is 50% to 70% of the total area.
0		The area affected is greater than 70% of the total area.